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Exon's Law and the Latin Syncopes

1. Introduction[1]

Metrical structure was a conditioning factor in Latin syncope, but not in a rhythmic fashion. Syncope neither helped bring about an alternating rhythm (e.g. **opifakiom* > *officium* 'service', not **O.pi.FA.ki.{om}*, where capitals denote some stress),[2] nor did it target specific positions in a rhythmical structure, such as the second, 'weak' position of LL and HL feet (Jacobs 2004), or 'trapped' light syllables (Mester 1994). Rather, syncope was brought about by a combination of metrical factors: the pressure to parse syllables into feet, the pressure for stress and weight to coincide, and most importantly, the pressure for feet to be as close to a word edge as possible.

Latin syncope has resisted formulation in terms of strict rules or sound changes for two reasons. Firstly, syncope was not a monolithic archaic Latin phenomenon, but continued to occur throughout Latin history, with different metrical, phonotactic and morphological constraints in different time-periods and registers. Secondly, the interaction of metrical factors is complex, so syncope is not restricted to certain fixed positions. Previous attempts

[1] I owe a great debt of gratitude to John Penney both for his sage guidance over the years (there is only one voice I hear when I silently ask myself 'Do you really believe that?'), and for the inspiration to revisit these recalcitrant problems. I should also like to thank the editors for their valuable comments. All errors are of course my own.

[2] Notations used: *(...)* = foot, '.' = syllable boundary, *** = reconstructed form (or OT markedness constraint), *+* = incorrect reconstruction/development, *{...}* = extrametrical syllable, *ː* = long vowel, ◇ = syncopated syllable, L = light syllable, H = heavy syllable, σ = either heavy or light syllable, L+ = a light syllable that became heavy after syncope of the vowel of the following syllable, by attachment of the stranded onset consonant to its coda. The acute accent denotes primary stress and the grave secondary stress. All references to Latin authors, works and collections are abbreviated as per *OLD*. Latin received orthography (with the addition of the length mark where appropriate) is used for attested Latin forms (e.g. *iuːnioːreːs*) and IPA symbols for reconstructed forms (e.g. **juweniːseːs*). For the purposes of this investigation, I shall recognise four periods in the history of Latin: (i) archaic Latin, from the earliest attestations in the 7th cent. B.C. to the beginning of the literary period in 240 B.C., (ii) early Latin, from 240 B.C. to the beginning of Cicero's career in 81 B.C. (iii) classical Latin from 81 B.C. until the death of Augustus in 14 A.D., and (iv) imperial Latin, from 14 A.D. onwards.

at finding a metrical context offer useful insights, but do not provide a comprehensive account. Cowgill (1970) argued that syncope was to be expected in the second and fourth syllables, if light, in words of more than four syllables, thus **awida:kiter* > *auda:cter* 'boldly'. However, syncope also occurred in the second and third syllables (**pri:semokapem* > *pri:ncipem* 'chief'),[3] or just the third syllable (**u:surapa:re* > *u:surpa:re* 'to usurp'). Mester (1994) argues that syncope occurred where a light syllable was 'trapped' between two heavy syllables, or between a heavy syllable and the end of a word. The syllable was trapped as it could not be parsed using bimoraic feet (H and LL). However, many other contexts for syncope occur, as the above examples illustrate. Jacobs (2004) appeals to the 'uneven' trochaic foot (HL) to posit the context for syncope to be the weak position of disyllabic feet, hence the second syllable in (HL) and (LL). Again, this does not match the evidence, and Jacobs' (HL) foot will be evaluated later in this chapter. Sihler (1995: 70) states that 'in a PItal. tetrasyllable with two light medial syllables (schematically xx̆x̆x) the second vowel regularly syncopates' (**kʷi:nkʷedekem* > *qui:ndecim* 'fifteen'), but acknowledges counterexamples in which syncope is found in the third syllable, since 'a cross-current arises from the especial readiness of short vowels following *l* and *r* to syncopate' (**sepelitos* > *sepultus* 'buried'). Is this a 'cross-current', or is the syncopating syllable merely conditioned by phonotactic and morphological constraints when the metrical pre-requisites for syncope were in place?

Sihler names his rule 'Exon's Law'. However, Charles Exon's original formulation (1906: 128) differs from Sihler's in a crucial fashion – the position of the syncopating vowel is not stipulated: 'In all words or word-groups of four or more syllables bearing the chief accent on a long syllable, a short unaccented medial vowel was necessarily syncopated, but might be restored by analogy'. Exon holds that this syncope occurred both

[3] See §6.2. As syncope is sensitive to word shape, this study will focus on oblique case forms of nouns and infinitive forms, showing the stem vowel, of verbs. Although nominative or singular present tense forms might have been analogical bases, the numerous forms using the stems employed here should at least give us reliable metrical shapes for many forms in the language.

in early Latin, probably in the third century, in words in which stress lay on a stressed heavy penult/antepenult, and in archaic Latin, where the stressed heavy syllable was word-initial. This more general formulation is a promising attempt at finding order, but its very generality feels unsatisfactory. Can we be more specific?

2. The Problems

A first problem is that counterexamples to Exon's Law abound, although it is clear that phonotactic constraints blocked syncope where word-shape requirements were met. Thus, HLHσ *ambulaːre* 'to walk' did not syncopate to *⁺amblaːre*, as the sequence /bl/ was unacceptable (note early Latin anaptyxis in this sequence). Contrast the outcome of a later imperial syncope: *oculus non oclus* 'eye' in the *Appendix Probi* (*G.L.* 4.198.18; cf. Italian *occhio*).[4] Similarly, the selection of the syncopated vowel in HLLσ in archaic times was presumably also governed by phonotactics: **amp^{h}orela* lost the second of its two internal light syllables (> *ampulla* 'flask') as deleting an inter-sonorant vowel was presumably preferable to creating the sequence /pr/ at that time. Note, however, the numerous Exon's Law examples which resulted in stop + /r/, such as *aperiːlis* > *apriːlis* 'April'. It is clear, therefore, that phonotactic constraints changed over the course of Latin history.

A second problem is that syncope was morphologically constrained. It usually respected the vowel in verbal roots and so failed to occur to these targets (Rix 1966). When the word shape and phonotactics were such to trigger syncope, there are occasionally indications that the vowel loss would have occurred were it not for morphological constraints. For example, **súb-rapuit* would regularly have given *surpuit* under Exon's archaic syncope (where the first syllable was stressed), and we do indeed find this form in Plautus (*Capt.* 760), and later in Lucretius (2.314) and Horace (*Carm.* 4.13.20). However, the regular Latin form is *surripuit* with vowel reduction rather than syncope, maintaining a vowel in the root.

[4] The *Appendix Probi* has been variously dated from the third to the eighth century A.D. See Quirk (2005) for detailed bibliography.

Morphology also played a major role in syncope in the form of analogical and paradigmatic levelling, as Exon notes (1906: 133): 'The length and accentuation of Latin words varied so continually in inflexion and derivation (*ámo*, *amámus*, *amátio*, *amatiónis*) that we might confidently have predicted that any phenomenon which depended upon those two factors would be powerfully modified in the end by levelling'. However, appeals to levelling should always be made with caution, and we must ensure that analogy is not merely invoked because a phonological pattern is not immediately forthcoming.

A third problem, the focus of this paper, resides in the fact that there are evidently non-Exon's Law metrical contexts for syncope, such as HLσ, LLσ, LLLσ and LLLLσ. Exon (1906: 131) explains some of these forms through levelling within a paradigm (e.g. **a:rido:s* > *ardor* 'burning, fire' on **a:rido:ris* > *ardo:ris* (gen.)) or by analogy on a derived form (e.g. *caldus* 'warm' on *calda:rium* 'hot room'), and others by arguing for their clitic status. The single accentual unit brought about by combining a clitic with a content word, forming a 'word-group' (note the wording of his law), gave an Exon's Law configuration. The difference between the syncopated preposition *supra:* 'above' and the unsyncopated adjective *superus* can be attributed to the former's proclitic status in its prepositional use, so *superá:viam* > *supra:viam*. But it is difficult to see how particular nouns and verbs can be explained in this way, and it can only be that these forms present word shapes that are configurations for syncope.

Chronology is a final problem. It is notoriously difficult to pinpoint what structures underwent syncope at which times given that unsyncopated forms are often not attested but reconstructed. Rather infelicitously, the main development that would allow us to construct a relative chronology is the rhotacism of intervocalic */s/ > /r/, whose chronology is itself obscure, although the evidence seems to indicate a change in the fourth century B.C. Whether syncopated forms show intervocalic rhotacism therefore indicates whether the surrounding vowels were present or lost by the fourth century. A second chronological indication is the position of the stress accent: if the syncopated vowel would have borne

stress under the Penultimate Law of classical times, we can deduce that syncope occurred at an earlier stage, given the likely perceptual robustness of stressed-syllable vowels. Thus, **adtetuli:* > *attuli:* must have occurred when the initial syllable, and not the syllable /te/, was stressed.

3. Phonology

It has long been recognised that numerous Latin phenomena can be accurately analysed in terms of foot structure (Jakobson 1937, Allen 1973, Mester 1994). Within the typology of foot parameters found in the world's languages (see Hayes 1995), classical Latin can be analysed using moraic trochees (i.e. left-headed foot types (ĹL) and (Ĥ)), final-syllable extrametricality (i.e. the final syllable is not parsed into a foot), right-to-left foot formation (i.e. unparsed material is restricted to the left edge of the word), and the head foot is the rightmost (i.e. the last foot in the word contains the primarily stressed syllable; other feet assign secondary stresses to their heads). The classical Latin Penultimate Law of stress assignment is easily analysed this way: stress falls on the penult if heavy (i.e. a bimoraic trochee, hence a well-formed foot on its own: *(cò:n).(fĕc).{tus}* 'completed'), and the antepenult if the penult is light (i.e. the head syllable of the final trochee: *(cò:n).(fĭ.ci).{o:}* 'I complete').

Iambic shortening in early Latin is a good example of what might occur when the different pressures towards foot formation conflict. Assuming that every word must contain a foot (the Strict Layer Hypothesis; Selkirk 1984), words of the shape LH (*amo:* 'I love') pose a problem: the parse (L)H observes extrametricality, but forms an ill-formed moraic trochee; L(H) violates extrametricality, but forms a well-formed foot; (LH) violates extrametricality and also forms an ill-formed foot. The early Latin solution is to shorten the long vowel in the second syllable (or to treat a doubly closed syllable as light, e.g. *legŭnt*), thus *amo*, allowing a parse (LL), breaking extrametricality, deleting a mora, but creating a well-formed foot, which parses all the syllables. Pressures towards applying metrical

structure therefore include: forming bimoraic trochees, parsing syllables, preserving input material (here moras; in the case of syncope, vowels), respecting extrametricality, and aligning feet to the right edge of the word. We shall see that syncope is the outcome where a shortened form is deemed the best strategy to resolve these conflicts.

Conflict resolution is captured well by Optimality Theory (OT), and this framework has been used in recent analyses of Latin metrical phenomena (Jacobs 2000, 2003a, 2003b, 2004, Prince & Smolensky 2004). For ease of comparison with these works and metrical analyses of non-Latin phenomena, and since OT provides good theoretical machinery to analyse the typology of metrical phenomena, I shall adopt OT formalisms. The different pressures can be captured by the following constraint set, along the lines of Prince & Smolensky (2004):

(1) Constraint set

FTBIN	Feet are bimoraic[5]
NONFINALITY (NONF)	A foot may not be final (i.e. final syllable extrametricality)
PARSE-σ	Parse syllables into feet
WEIGHT-TO-STRESS PRINCIPLE (WSP)	Heavy syllables are stressed
STRESS-TO-WEIGHT PRINCIPLE (SWP)	Stressed syllables are heavy
MAX-V	An underlying vowel must be parsed (i.e. no vowel-deletion)

The constraint PARSE-σ is violated when there is a 'stray' syllable which cannot be incorporated into a well-formed foot, hence FTBIN is the higher ranked constraint, e.g.

[5] Prince & Smolensky's formulation of FTBIN is 'feet are binary at the level of the syllable or mora'. I have altered the constraint following Mester's observation (1994) that Latin feet seem to have been strictly bimoraic, as this seems to offer the best analysis for stress assignment, iambic/cretic shortening processes, and as demonstrated below, syncope.

fà.(cí.li).{us} 'more easily' rather than *(fà).(cí.li).{us}* with an initial monomoraic foot. The location of the stray syllable was deemed to be evidence for directional foot formation in rule-based metrical theory. However, such accounts fail to deal straightforwardly with languages which show right-to-left parsing, but have an initial trochee (Garawa), and those which have left-to-right parsing, but a final trochee (Polish). Optimality Theory deals with directionality effects by means of a family of 'alignment' constraints, whereby one prosodic category edge aligns with another (McCarthy & Prince 1993). The requirement that the right edges of all members of the prosodic category 'foot' be aligned to the right edge of some member of the prosodic category 'prosodic word (PrWd)' results in all feet occurring as close to the end of the word as possible. If the specified edges are changed to the left, then all feet are constructed as close to the start of the word as possible.

(2) Alignment constraints on foot position

ALIGN-FOOT, R, PRWD, R (abbreviated as ALL-FT-R)

The right edge of every foot coincides with the right edge of some prosodic word (one violation for each syllable between the right edge of any foot and the right edge of the word)

ALIGN-FOOT, L, PRWD, L (ALL-FT-L)

The left edge of every foot coincides with the left edge of some prosodic word

These constraints are violated by every foot that is not final/initial in PrWd. Violations therefore occur in any word of more than one foot in a gradient fashion, each foot being judged by its distance in syllables from the specified word edge. However, as long as PARSE-σ is higher ranked than the alignment constraint, feet will be formed in an apparently iterative directional manner. If, however, the alignment constraint is ranked above PARSE-σ, non-iterative footing is the result, with only a single stress-assigning foot constructed. The expanded theory of 'Generalized Alignment' (McCarthy & Prince 1993) has been

successful in accounting for several language phenomena ranging through stress-assignment, the alignment of morphemes with prosodic categories, infixation, and phenomena attributed to extrametricality and cyclicity.[6] As we shall see, Latin stress placement and syncope are sensitive to the principle of alignment. Regarding stress placement, the change from initial-syllable stress in archaic times to the Penultimate Law in classical times can be analysed by a change in the aligned edges from left to right, and the designation of the head foot (that bearing primary stress) as the rightmost rather than the leftmost (ALIGN-HD-FOOT, R, PRWD, R: 'The final foot is the head foot'). Such a change was plausibly brought about by input data which was ambiguous as to the aligned edge, e.g. *(gau).(de:).{re}* 'to rejoice', and a similarity in the perceptual correlates of primary and secondary stresses. With regard to syncope, if vowel-deletion in certain phonetic environments was permitted by the grammar (low-ranking MAX-V), then it might be used to reduce the number of syllables between a foot-edge and a word-edge, thus achieving a better satisfaction of the alignment constraint.

To recap, our reconstruction of the synchronic grammars of different periods of Latin should have the same metrical, phonotactic and morphological pressures in each posited time period, with each grammar predicting the syncopes that we can ascribe to its period. This study will focus upon the metrical conditions for syncope, acknowledging the potential influences of phonotactics and morphology where relevant, but enumerating phonetic environments rather than analysing them. However, comparing the phonetic environments for each syncope that we hypothesise offers a good test to evaluate whether we are on the right track: if a diachronic re-ranking of constraints results in syncope in a number of different metrical configurations, we expect those syncopes to show identical phonotactic

[6] The patterns seen in Garawa and Polish are achieved through the interaction of different alignment constraints obtaining between the edges of foot and PrWd, using additional constraints requiring that the edge of a PrWd is aligned to *some* foot (not that all feet are aligned to the edge of a PrWd): ALIGN-PRWD, L/R, FOOT, L/R. If these are higher ranked than ALL-FT-L/R, the result is the construction of a single foot at one word edge, then apparently directional footing from the other.

constraints (or in practice, a notable overlap). We have no such expectation regarding syncopes motivated by different changes in metrical constraints.

The data used in the study are taken from the standard handbooks of Latin (Lindsay 1894, Niedermann 1997 (1906), Sommer 1948, Allen 1973, Sommer & Pfister 1977, Leumann 1977, Sihler 1995, Meiser 1998), together with specific studies into the phenomena in question (e.g. Exon 1906), and further evidence where relevant to particular questions. The phonetic environments listed below are therefore not likely to be exhaustive, but the evidence discussed in the literature gives us a good basis from which to begin.

4. Early Archaic Latin

The earliest examples of Latin syncope appear to date from the 6th-5th cents. B.C., occurring at the same time as vowel reduction in non-initial syllables. Both archaic phenomena have been attributed to the archaic 'strong' initial-syllable stress, which might have manifested itself through greater intensity and duration. The latter certainly appears to have been the case: undershoot-based reduction of the type seen in Latin occurs in languages with a significant durational asymmetry between stressed and unstressed syllables (Barnes 2006: 29), suggesting a notable prominence of the initial syllable. From a metrical perspective, archaic Latin words therefore uniformly began with a left-headed foot.

There is evidence to suggest, however, that this was the only foot constructed by the phonology of archaic Latin. Three pieces of evidence suggest that a sequence such as HLLσ was footed (Ĺ)LLσ, with only the stressed syllable parsed, and not (Ĺ)(L̀L)σ with more parsing, and secondary stress on the first light syllable: (1) syncope commonly targeted the first light syllable (**amb^{h}ik^{w}olos* > *anculus* 'manservant'), (2) vowel reduction in internal light syllables was insensitive to position within the word (**komfakio:* > *co:ficio:* 'I complete'), and (3) both light syllables were sometimes syncopated, suggesting no metrical structure beyond the stress-assigning foot (**deksiteros* > **dekstṛs* > *dexter* 'right',

**mrewisema* > *browisema* > *bru:ma* 'mid-winter'). As seen above, this is brought about by the ranking of ALL-FT-L above PARSE-σ.

	/HLLσ/ *komfakio:*	ALL-FT-L	PARSE-σ
	(Ĥ)(ÌL)σ	*!	*
☞	(Ĥ)LLσ		***

Internal light syllables were left unparsed, but can the same be said for internal heavy syllables? If the weight-to-stress principle (WSP) was higher ranked than the alignment constraint, then all internal heavy syllables would be parsed as well-formed bimoraic trochees in themselves, and attract a secondary stress, thus **(kóm).(fàk).{tos}* 'completed'. However, closed-syllable vowel reduction provides strong evidence that this was not the case. The resistance of closed syllables to the extreme reduction to /i/ seen in open syllables cannot be ascribed to a secondary stress, as closed syllables which would have fallen in the weak position of an initial stress-assigning foot (ĹH), hence would not have been secondarily stressed, show precisely the same pattern of reduction as other closed syllables, and do not undergo extreme reduction: **(jú.wen).ta:ts* > *iu.ven.ta:s* 'youth', not *+(jú.win).tas*.

Early archaic Latin words therefore only contained a single left-headed foot, placing stress on the initial syllable, with the rest of the word left unparsed. This foot need not even have been quantity-sensitive, in that there was no correlation between stress and syllable weight: both initial light and heavy syllables bore stress, and the evidence above suggests that no other syllable bore stress even if heavy. However, the introduction of quantity sensitivity (i.e. some correlation between stress and heavy syllables; see below) offers a clue as to why further parsing and ultimately syncope came to occur.

5. Archaic SWP Syncope

The early archaic system whereby each word contained only a single, word-initial, quantity-insensitive foot came under threat when the stress of the initial syllable created a significant asymmetry in the duration and intensity of the initial and other syllables, such that vowel reduction resulted. The greater prominence of the initial syllable seems to have resulted in a pressure to reinforce the strong stress with syllable weight, a phenomenon formalised by the stress-to-weight principle (SWP), and seen in languages such as modern Italian, where every stressed syllable must be heavy. The raising of SWP above MAX-V resulted in second-syllable syncope in initial LL sequences, as the onset of the second syllable came to form a coda of the first. Words of the shape LLσ/LLLσ therefore syncopated to Hσ/HLσ, but only under tight phonotactic restrictions.

(3) Phonetic environments for archaic SWP syncope (LL-initial words)

Between identical stops: **ré-kekidi:/-tetuli:/-peperi:/-pepuli: >*

reccidi:/rettuli:/repperi:/reppuli: 'I fell back/brought back/discovered/repulsed'

Dorsal + coronal stop: **dokitos > doctus* 'learned', **sekatos > sectus* 'cut'

/nl/: **dwenelos > bellus* 'handsome'

/sN/: **posinere > po:nere* 'to put', **susemere > su:mere* 'to take up'

/lN/: **kolamenos > culminis* 'roof', **wolaneses > vulneris* 'wound'

/wk/: **rawikos > raucus* 'hoarse'

/wr/: **re-wersos > ru:rsus* 'again'

/n-str, w-str/: **monestrom > mo:nstrum* 'portent', **jowestos > iu:stus* 'just'

Several features attest to the antiquity of this syncope. First, unsyncopated forms are not attested, with the exception of *columen*. In this case, it is likely that /lm/ was a marginal environment for syncope, resulting in variant forms surviving. The explanation of *EDL* 127 that *culmen* arose by analogy on the longer oblique case-forms where syncope was expected (i.e. *columen*, *culminis*) is problematic in the absence of any other evidence for such variation, and given forms like *vulnus*, *-eris* with no trace of unsyncopated forms anywhere

in the paradigm, presumably because /ln/ was a robust syncope environment. With regard to Gk. *balaneion* > *balineum* 'bath', we cannot be certain that it failed to show archaic syncope because of metrical or phonotactic constraints. As a loan from Greek, it is equally possible that it displayed resistance to syncope as a result its loanword status, and it is indicative that the native word *vulnus* in precisely the same context did syncopate. Therefore, *balineum* underwent archaic vowel reduction, but failed to go so far as to syncopate. It did however undergo syncope much later, presumably when it was no longer constrained by the loanword phonology. Second, /sN/ was a pre-rhotacism environment for syncope.[7] Third, the change */o/ > /u/ before a coda dark-l took place after this syncope. Fourth, SWP-induced syncope can even occur in heavy syllables in LH-initial words to achieve a heavy initial, although only to yield /wr/ and notably between /n, w/ and the sequence /s/ + stop, thus in addition to the above, **fawestos* > *faustus* 'fortunate' (cf. *faventia* 'auspicious behaviour' at Acc. *trag.* 511), **awispeks* > *auspex* 'augur', *fenestram* > *fenstram* (Pl. *Cas.* 132) or *fe:stra* 'window', **awisdi:re* (cf. Gk. **awisthanomai* > *aisthanomai*) > **awzdi:re* > *audi:re* 'to hear', IOVESTOD (*CIL* 1^2.1) > *iu:sto:* 'lawful (abl.)'. Finally, this last sequence */owe/ regularly yielded /u:/ as a result of this syncope, and not /o:/ as later. The plausibly early univerbated LH-initial **re-werd-tos* gives us **ro-wersos* > **rowrsos* > *ru:rsus*, unlike **mowetos* > *mo:tus* 'motion'.[8] The fact that no example of third-syllable syncope in words ending LLLσ shows any of these consonantal environments (e.g. **gemenelos* 'twin') indicates why SWP did not result in second-syllable syncope to HLσ at an early stage in those words. Similarly, /pt, pf/ were not environments for archaic SWP-induced syncope, as shown by *opifex* 'artisan', and evidence that unsyncopated forms were still recognisable to an early Latin speaker (see §7).

[7] **osVnos* > *ornus* 'kind of ash-tree' (*EDL* 435) remains problematic.

[8] We are still unable to decide between Pr-It. **aramos* and **armos* 'shoulder; upper arm' (*EDL* 55) on the basis of the environments found. However, *antae* 'square pilasters' seems more likely to derive from **anta:i* rather than **anata:i* (*EDL* 44) given non-syncopating *monitus* 'warned'.

The constraint ranking required for archaic SWP syncope is therefore: ALL-FT-L, SWP » MAX-V » PARSE-σ. MAX-V must be ranked above PARSE-σ as non-second-syllable syncope was not triggered at this stage, hence deletion could not occur simply to reduce the number of unparsed syllables.

	/LLσ/ *dokitos*	ALL-FT-L	SWP	MAX-V	PARSE-σ
	(ĹL)σ		*!		*
☞	(Ĺ+)⟨L⟩σ			*	*

6. Exon's Law Syncopes

6.1. Alignment Syncope

Shortly after SWP syncope, and still in early archaic times, we find the first alignment-induced syncope. As stress coincided with weight, speakers came to associate weight with stress, so assigning a stress also to word-internal heavy syllables. This quantity-sensitive phenomenon is codified as the weight-to-stress principle (WSP); when ranked above ALL-FT-L, the result is that each internal heavy syllable was footed, thus **(kón)ki(ta:)ri:* (> *cuncta:ri:* 'to hesitate'). Any word shape with internal syllables containing a long vowel or closed syllable therefore incurred violations of ALL-FT-L, e.g. **(kón)ki(ta:)ri:* incurs two violations as a result of the internal foot starting two syllables into the word. A pressure to minimise such violations arose, and an obvious repair strategy was syncope, a result of low-ranking MAX-V, thus reducing the number of syllables between the internal foot and the left edge: *(cunc)(ta:)ri:*. The archaic strong prominence of the start of the word that motivates such changes can therefore be formalised as high-ranking ALL-FT-L, and I shall refer to this syncope as 'alignment syncope'. The constraint ranking must be WSP » ALL-FT-L » PARSE-σ, MAX-V (as SWP is not relevant for this syncope, we shall omit it). Note also that the word shapes affected all present metrical contexts for Exon's early syncope, which

specifically required the presence of a penultimate/antepenultimate heavy syllable. Here, we posit that syncope in these words occurred under archaic initial stress.

	/HLHσ/ *konkita:ri:*	WSP	ALL-FT-L	MAX-V	PARSE-σ
	(Ĥ)LHσ	*!			***
☞	(Ĥ)(L)(Ȟ)σ		*	*	*

(4) Word shapes affected by alignment syncope

HLHσ **konkita:ri:* > *cuncta:ri:* 'to hesitate'

HLLHσ **u:surapa:re* > *u:surpa:re* 'to usurp'

HLHLσ **posteri:die:* > *postri:die:* 'on the next day'

LHLHσ **magistera:tus* > *magistra:tus* 'magistrate' (cf. LHLLσ *magisterium* 'office of a president')

LLHσ **aperi:lis* > *apri:lis* 'April'

LLLHσ **juwenio:se:s* > *iu:nio:re:s* 'younger (pl.)'

LLHLσ **awida:kiter* > **auda:kiter*[9] 'boldly'

The clitic groups identified by Exon also belong here, as the final heavy syllables of the clitics formed an internal foot. This underlies Pedersen's observation (1922) that syncope is expected in HLσ only where the final syllable contained a long vowel, not if it had a short vowel (syncope in HLσ forms with a short vowel in the final syllable come under archaic parsing syncope, §6.2). Furthermore, it is also plausible that the stem following the clitic bore an initial stress, hence formed an internal foot, again triggering left-alignment syncope once the clitic group formed a single PrWd.

(5) Alignment syncope in clitic groups

[9] (1) Alignment syncope does not motivate syncope of the fourth-syllable vowel **awida:kiter*. This is induced by archaic parsing syncope. (2) Forms resulting in secondary syllabic liquids and nasals are left aside in this discussion and require further investigation, e.g. HLσ **po:klelom*, **tignelom* >HHσ *po:cillum*, *tigillum*; H/LLHσ **sakrod^{h}o:tem*, **faklita:tem* > LHHσ *sacerdo:tem*, *faculta:tem*.

HLH- **enfèra:* > *infra:* 'under', **entera:* > *intra:* 'within', **ekstera:* > *extra:* 'outside', **komtera:* > *contra:* 'against', **ultera:* > *ultra:* 'beyond'

LLH- **supera:* > *supra:* 'above', **retero:d* > *retro:* 'behind', *kitera:* > *citra:* 'on this side', **propeter* > *propter* 'near'

The phonetic environments for syncope in these groups are also strikingly homogeneous. Most notably, syncope occurred in stop + liquid (*TR*) sequences in this and no other syncope until pre-classical times.

(6) Phonetic environments for archaic alignment syncope

TR: **posteri:die:*, **magistera:tus*, **aperi:lis* above

**exterim-secus* > *extri:nsecus* 'to the outside'

**diskapuli:na* > *discipli:na* 'instruction'

**aperi:cus* > *apri:cus* 'sunny'

Clitics, e.g. **supera:*

/pt, kt/ **konkita:ri:* above

/dt, dk, dn/ **kedate* > *cette* (clitic) 'give me', **praidiko:nem* > *praeco:nem* 'crier', **ordina:re* > *orna:re* 'to adorn'[10]

/mt, mk/ **Pometi:nai* > *(palu:de:s) Pomptinae* '(fens) of Pometia', **no:mokapa:re* > *nuncupa:re* 'to call'

/nd/ **wi:node:mia* > *vinde:mia* 'vintage'

/rp, rt/ **u:surapa:re* above, **wirotu:tem* > *virtu:tem* 'valour'

/wd, wn, ws/ **awid:ere* > *aude:re* (cf. *avidus*) 'to dare', **ga:wide:re* > *gaude:re* 'to rejoice', IOVESAT (*CIL* 1^2.4) > **iousat* > *iu:rat* 'swear (3sg)'[11]

[10] *Ordina:re* 'to place in rows' was analogically formed on *ordo:* 'row'.

[11] *Pro:vide:re* 'to foresee' is probably an analogical survival based on *vide:re* 'to see'. The semantically specialised **pro:videntem* > *pru:dentem* 'clever' reflects the regular development. *Aude:re*, *iu:ra:re* and other originally LL-initial words might have come about through archaic SWP syncope, but as syncope yielding /w/ + /d, n, s/ seems to occur where the initial syllable was already heavy (**ga:wide:re*), alignment syncope is the better account. *Rursus* has no internal heavy syllable, so SWP syncope must be the explanation.

There are again several indications of the antiquity of this syncope. The change */oː/ > /u/ in closed syllables (**noːmokapaːre* > *nuncupaːre*) occurred after this syncope, as did consonantal epenthesis in **Pometiːnai* > **Pomtiːnai* > *Pomptiːnae*. We encountered a plausible morphological influence in clitic groups – the stem possibly had initial stress – and this might be extended to compounds which had not yet been completely univerbated. This could explain the instance of archaic */owe/ > /uː/ in **noweno-dinai* > *nuːndinae* 'market day', beside later */owe/ > /oː/ in **nowenos* > *noːnus* 'ninth', if the former was footed *(nówe)no(dì)nai*, with a stress on the first syllable of the second element of the compound (as in any other PrWd), triggering alignment syncope. The later change to /oː/ was plausibly a context-free development, as also seen in */awV/ >/au/ (e.g. **kawitos* >*cautus* 'wary', cf. still *cavitum* in the Lex Agr., *CIL* 1^2.585.6).

The non-rhythmic nature of this syncope is clear from HLLHσ words in which syncope occurred in either the second or the third syllable. There was no specific metrical position for syncope, but rather, the metrical profile of the word was optimised by the deletion of whichever vowel phonotactics and morphology permitted. Thus, in morphologically and metrically identical **uːsuraparːe* and **noːmokaparːe*, we find third-syllable syncope in the first, and second-syllable syncope in the second: /sr/ and /kp/ were not syncope environments at this stage.

6.2. Archaic Parsing Syncope

The application of metrical structure word-internally motivated a greater pressure towards full parsing by an extension of the pattern of constructing non-initial feet in heavy syllables. This can be formalised as the raising of the constraint PARSE-σ. However, the step-wise raising of PARSE-σ has intriguing consequences: if it is raised above MAX-V but not above ALL-FT-L, a situation arises whereby the number of unparsed syllables is minimised by syncope, but internal light syllables are still not given metrical structure, owing to the higher ranking of the alignment constraint. Internal heavy syllables are still parsed due to

undominated WSP. Therefore, a sequence HLLσ would still have a single initial foot, but the greater importance of minimising unparsed syllables over the retention of underlying vowels results in syncope to (H)Lσ. I shall refer to this as archaic parsing syncope.[12]

	/HLLσ/ *formokape:s*	WSP	ALL-FT-L	PARSE-σ	MAX-V
	(Ĥ)(ÈL)σ		*!	*	
	(Ĥ)LLσ			***!	
☞	(Ĥ)⟨L⟩Lσ			**	*

(7) Word shapes affected by archaic parsing syncope

HLLσ **formokape:s* > *forcipe:s* 'tongs'

HLLLσ **ambikaputem* > *ancipitem* 'two-faced'

LLLLσ **pueropara* > *puerpera* 'woman delivered of a child', **opifakiom* > *officium* 'service' (cf. *opifex*)

LHLσ **koro:nela* > *coro:lla* 'small garland'

LLLHσ **opifaki:na* > *offici:na* 'workshop'

HLσ, HHLσ, HLHLσ, LLHLσ: see below

LLLσ: see next section

(8) Phonetic environments for archaic parsing syncope

/pf/ **opifakiom*, **opifaki:na* above (see next section)

/tp, dt/ **hostipotem* > *hospitem* 'guest', **ad-tetuli:* > *attuli:* 'I brought to'

/(k)st)/ **deksiteros* > *dexter* 'right'

/(r)k^{w}n/ **k^{w}erk^{w}ineos* > *querneus* 'of oak'

/(n)k^{w}d, (m)bk/ **k^{w}i:nk^{w}edekem* > *qui:ndecim* 'fifteen', **ambikaputem* above

[12] As there is no indication of SWP-induced syncope any longer, we can presume that the SWP was lower-ranked than the above constraints by this stage. Plausibly, the introduction of secondary stresses and internal parsing reduced the prominence of the initial syllable, hence SWP was no longer transparent to the learner.

/mk/ **formokape:s* above[13]

/nl/ **koro:nela* above

/rp, rg, rl/ **subrapuit* > *surpuit* 'he stole', **pueropara* above, **per-/porregere* > *per-/porgere* 'to advance/extend', **amp^{h}orela* > *ampulla* 'flask'[14]

/ln/ **po:pulinos* > *po:pulnus* 'derived from poplar'

The phonetic environments for alignment syncope and parsing syncope are clearly different, indicating their different motivations. Coronal + dorsal stop is no longer an environment **praidiko:nem* versus *participium* 'participle', *qua:rticipem* 'fourth in order'), nor is /pt/ (not **ambikaputem* > **+aŋkeptem*, beside clitic **propeter*), nor most notably *TR* (*magisterium* 'office of a president' beside *magistra:tus*, *in-/exterior* 'inner/outer' beside *intra:/extra:*, *ampulla* not **+amprela*). Again, we see syncope in whichever syllable is phonotactically best suited, hence second-syllable syncope in **hostipotem*, but in the third syllable of **amp^{h}orela*.

There are indications that this syncope occurred after rhotacism: **jousagiom* > *iu:rgium* 'quarrel'. However, HLLLσ **pri:semokapem* > *pri:ncipem* 'chief' suggests later rhotacism, as does HLLLσ **eksteresemos* > *extre:mus* 'utmost', LLLLσ **superesemos* > *supre:mus* 'highest', and HLσ **pri:semos* > *pri:mus* 'first'. These together all seem to indicate a context-free deletion of a vowel in the sequence */sm/ at an early archaic stage, that is, it occurred regardless of metrical structure whenever the phonetic conditions were in place. Therefore, alignment syncope resulted in **ekster-/super-esmos* > *extre:mus/supre:mus*, and parsing syncope induced **pri:smokapem* > *pri:ncipem*. We would also expect alignment syncope to yield HLHσ **a:side:se* > *arde:re* 'to burn' and **jousaga:re* > *iu:riga:re* 'to

[13] *Mu:nicipium* 'community' suggests that a consonant had to precede the nasal for syncope to occur, thus **pri:smokapem* and **formokape:s*, but **mu:ni(a)-kapiom*.

[14] **subrapuit* and **per-/por-/sub-regere* offer the only examples of stem-initial syncope in prefixed verbs. This is a good indication that the forms syncopated well after the preverb and verb were felt to form a single prosodic unit. Cf. **u:surapa:re* > *u:surpa:re* in alignment syncope for an example of stem-initial syncope in nominal + verbal stems.

quarrel', but the presence of a rhotacised consonant in these forms indicates that they occurred later. An analogical explanation on the basis of *iu:rgium* and *a:ridus* (later *ardus*) 'dry' seems most straightforward, as alignment syncope clearly occurred before rhotacism, and the attestations of unsyncopated HLHσ *iu:rigandum* (Pl. *Mer.* 119) and *obiu:rig-* 'reprove' (Pl. *Bac.* 1020, *Mer.* 46, *Trin.* 68) seem to indicate that syncope in the verb was more recent than alignment syncope.[15]

The word shapes HL̲σ, HHL̲σ, HLHL̲σ, LLHL̲σ, LHL̲σ are all expected to undergo parsing syncope (where underlining indicates the relevant syllable). However, the formation of the 'uneven trochee' (HL) would permit these configurations to survive unsyncopated, as left-alignment would not be compromised, thus (HL)σ, (H)(HL)σ (one violation as in (H)(H)Lσ), (HL)(HL)σ, (LL)(HL)σ. Indeed, the diachronic raising of PARSE-σ would provide a good motivation for the introduction of (HL) into the foot inventory, as more parsing would be achieved with the same degree of left-alignment. However, the phonetic environments in which these forms syncopate seem little different from those above, and there is no further indication that syncope was later here. On the contrary, we find that the assimilation */nl/ > /ll/ is still in progress, and as above, we do not find syncope in *TR* (*exteri:*).

(9) Phonetic environments for archaic parsing syncope in possible (HL) words

/kt/ **auda:kiter* > *auda:cter* 'boldly'

/(r)k^{w}n/ **k^{w}erk^{w}inos* > *quernus* 'of oak' (analogical explanation on *querneus* also possible)

/(n)kt / **konkiti:* > *cuncti:* 'together'

/nl/ **oinelos* > *u:llus* 'any', **wi:nelom* > *vi:llum* 'small quantity of wine'

/ln/ **o:lena* > *ulna* 'forearm'

[15] *EDL* 53 states that *ardeo:* is derived from *a:r(i)dus*, and *ardor* 'burning, fire' from *ardeo:*.

To conclude this section, we should note that HLσ and LLLLσ syncope also occurred in /rd/ and /rt/, but there are indications that these occurred at a later stage to which we now turn.

7. *(LLL) and early SWP Syncope

The ranking WSP » ALL-FT-L » PARSE-σ » MAX-V triggered archaic parsing syncope, but did not induce parsing of internal light syllables. We entertained the hypothesis that the pressure to parse while maintaining left-alignment might have induced the introduction of (HL) into the foot inventory, but rejected the position on the basis of the evidence. However, the early Latin stress pattern seen in *puéritia* 'boyhood' indicates that another foot form does seem to have been introduced into the inventory as a result of the above pressures: ternary branching (LLL) (see Halle & Vergnaud 1987, Levin 1988, Dresher & Lahiri 1991, Rice 1992). Second-syllable stress in *puéritia* is confirmed by the consistent ictus in this position in the early dramatists (Ter. *Hau.* 183). Using only bimoraic feet, left-alignment predicts *+(pú.e).ri.ti.{a}* and right-alignment *+pu.e.(rí.ti).{a}*. Full parsing also predicts stress on either the first or third syllable depending on the alignment of the head foot. The only analysis that predicts this pattern is a right-aligned ternary branching foot (ĹLL), thus *pu.(é.ri.ti).{a}*. Similarly, we can hypothesise that *balineum* 'bath' was fully parsed *(bá.li.ne).{um}*: words of the shape LLLσ were stressed on the first syllable in early Latin (Lindsay 1894: 173-74).[16]

Returning to archaic Latin, (LLL) feet allowed forms like **(o.pi.fa).(ki:).{na}*, **(o.pi.tu).{mus}*, *(ba.li.ne).{um}* to be fully parsed without compromising left-alignment. At this stage, right-alignment of feet (ALL-FT-R) began to arise partly from the paucity of cues for learning left-alignment in fully parsed words.[17] Note that even ternary feet could not

[16] The correct theoretical analysis of the ternary pattern is still debated. See Elenbaas & Kager 1999, although their account (denying ternary feet and using the interaction of the LAPSE constraint with alignment and parsing constraints) still does not work for early Latin.

[17] There is insufficient space here to develop a full account of the change of stress position in Latin, which would probably involve a detailed consideration of derivational levels in the synchronic phonology of archaic Latin. The lexical (word-level) constraint ranking developed thus far predicts no parsing of internal LL

protect LLLLσ (**pueropara*, **opifakiom*) and LLLHσ (**opifaki:na*) from archaic parsing syncope and alignment syncope respectively: syncope reduced the number of unparsed syllables in LLLLσ and improved the left-alignment of the heavy syllable in LLLHσ. Although *opifici:na* at Pl. *Mil.* 880 suggests that syncope was relatively recent, it must have occurred under initial stress, hence perhaps the connection with *opifex* 'artisan' (no syncope expected) could explain the extended survival of the longer form.

Syncope after rhotacism in LLL sequences indicates that the constraint *(LLL) was raised above MAX-V in late archaic times. Feet were plausibly still left-aligned at this stage, and the phonetic environments and subsequent sound changes indicate a certain antiquity.[18]

	/LLLσ/ *Falesinos* > *Fálernus*	ALL-FT-L	PARSE-σ	*(LLL)	MAX-V
	(ĹL)Lσ		**!		
	(ĹLL)σ		*	*!	
☞	(ĹL+)<L>σ		*		*

(10) Phonetic environments for *(LLL) syncope

/lt/ **sepelitos* > *sepultus* 'buried'

/nl/ **gemenelos* > *gemellus* 'twin'

sequences, but full parsing of the kind likely to have made edge-alignment ambiguous to the learner (e.g. *(im).(pe.ri).{um}*) might have arisen in the post-lexical phonology, where PARSE-σ was higher ranked. This is similar to Mester's (1994) 'subsidiary footing', i.e. foot-formation at a later derivational stage to stress assignment. Diachronic sound change has been interpreted as commonly arising in the post-lexical phonology; over time, its domain might shrink in successive synchronic phonologies to the word level, then stem level (morphologisation) before affecting the underlying form (lexicalisation) (e.g. Bermúdez-Otero 2006).

[18] The creation of an unstressed internal heavy syllable by syncope, violating WSP, again suggests derivational levels in the synchronic phonology. Stress was assigned using a ternary branching foot in the lexical phonology, but the higher ranking of *(LLL) in the post-lexical phonology triggered syncope, although stress position remained faithful to the lexical assignment. WSP was therefore lower ranked in the post-lexical phonology, and is therefore omitted here.

/rn/ **Falesinos* > *Falernus* 'Falernian', **koselinos* > **korelinos* > **kolerinos* > *colurnus* 'made of hazel'

Deleting the second-syllable vowel in the above examples would have resulted in phonotactically dispreferred sequences (*⁺seplitos*, *⁺kolrinos*, *⁺Falrinos*).

The ranking PARSE-σ » *(LLL) meant that where phonotactics prevented syncope, a ternary branching foot was still formed (*pueritia*). After the archaic period, the head foot moved from the leftmost to the rightmost, and ALL-FT-L was ranked below ALL-FT-R: *puéritia* can only be explained by a right-aligned ternary branching foot: *pu.(é.ri.ti).{a}*, not *⁺(pú.e.ri).ti.{a}*. We also see again the influence of the stress-to-weight principle (SWP): the constraint did not trigger syncope, but had the side-effect of preventing full parsing, even though it is certain that PARSE-σ must have been raised above ALL-FT-R by this stage to give metrical structure to internal LL (e.g. *(ìm).(pé.ri).{um}* 'command').

	/LLLLσ/ *pueritia*	SWP	PARSE-σ	ALL-FT-R	*(LLL)	MAX-V
	(ÌL)(ĹL)σ	**!	*	****		
	LL(ĹL)σ	*	***!	*		
	(ĹL)LLσ	*	***!	***		
	L(ĹL)Lσ	*	***!	**		
	(ĹLL)Lσ	*	**	**!	*	
☞	L(ĹLL)σ	*	**	*	*	

Syncope in *(ó.pi.tu).{mus}* > *(óp).ti.{mus}* 'best' occurred before Plautus. Inscriptional OPITVMA in the archaising 1st cent. B.C. inscription *CIL* 1^2.1016 might indicate that /pt/ presented a syncope context in the not-too-distant past, although OPTVMO in the Scipio epitaph *CIL* 1^2.32 from around 200 B.C. provides a *terminus ante quem*. *Optimus* performs more poorly on two constraints than the unsyncopated form: one syllable fewer is parsed than in *opitumus*, and the single foot is one syllable further from the right edge of PrWd. A higher-ranked constraint must have triggered syncope, and as *(LLL) must be ranked below

PARSE-σ to achieve a ternary foot in *pueritia*, the triggering constraint must be SWP with /pt/ as a syncopating environment at this time. The survival of forms such as *capitis* 'head (gen.)' must then be explained by reinforcement by repetition in the paradigm.

	/LLLσ/ *opitumus*	SWP	PARSE-σ	ALL-FT-R	*(LLL)	MAX-V
	L(ĹL)σ	*!	**	*		
	(ĹL)Lσ	*!	**	**		
	(ĹLL)σ	*!	*	*	*	
☞	(Ĺ+)<L>Lσ		**	**		*

Syncopated *puértia* first appears at Hor. *Carm.* 1.36.8, indicating a similar chronology to that seen in LLLσ *bálineum* > *bálneum*, which also had stress on the first of three short syllables in early Latin, and was only syncopated post-Plautus.[19] We do not find ternary branching feet in classical Latin, and LLLσ words that had not contained phonetic environments for syncope were stressed according to the Penultimate Law (e.g. *mu.(lí.e).{rem}* 'woman'). Note that the classical Penultimate Law would have placed the stress on the syncopating syllable in *+ba.(lí.ne).{um}* and *+(pù.e).(rí.ti).{a}*, so syncope must have occurred in early Latin, and *(LLL) raised further. Once /ln/ and /rt/ came to present syncopating environments, SWP and *(LLL) triggered syncope (whichever was higher ranked), with the other also being satisfied as a result. Perhaps the paucity of remaining words of the shape LLLσ resulted in the raising of *(LLL).

[19] [Caper] prefers *balneum* (*G.L.* 7.108).

	/LLLLσ/ *pueritia*	*(LLL)	SWP	PARSE-σ	ALL-FT-R	MAX-V
	(ÌL)(ĹL)σ		**!	*	****	
	LL(ĹL)σ		*!	***	*	
	(ĹL)LLσ		*!	***	***	
	L(ĹL)Lσ		*!	***	**	
	(ĹLL)Lσ	*!	*	**	**	
	L(ĹLL)σ	*!	*	**	*	
☞	L(Ĺ+)<L>Lσ			***	**	*

Third syllable syncope in LLLσ failed to make the initial stressed syllable heavy, but satisfied *(LLL): *(mí.se.ri).{tus}* > *(mí.ser).{tus}* 'pitied' (Val. Max. 7.4.3, 9.3.4; *Carmina Latina Epigraphica* 512.5). The identical phonetic environment /rt/ is confirmation that the syncopes occurred in the same synchronic phonology.

High-ranking SWP also triggered syncope in (LL) feet, thus *(cá.li).{dus}* > *(cal).{dus}* 'hot', *(só.li).{dus}* > *(sól).{dus}* 'solid' (*CIL* 1^2.593.114, 115; 45 B.C.). Quintilian (1.6.19) reports that Augustus viewed the longer form *calidum* as περίεργον 'excessive', indicating well-established syncope by the late first century B.C. The similarity between this phonetic environment and the above (liquid + coronal stop/nasal) again corroborates the view that the syncopes were contemporaneous.

(11) Phonetic environments for *(LLL)/SWP syncope

/rt, rd/ *pueritia*, *misertus*; *viridis* > *virdis* 'green' (Cato *Agr.* 145.3, Lucil. 945(?))

/ld/ *calidus*, *solidus*

/ln/ *balineum*

8. Early/Classical Parsing Syncope

To complete the picture, it seems that in early and classical Latin, the pressure to parse resulted in the phonetic environments for syncope to be relaxed further. HLσ *a:ridus* 'dry', with a 'trapped' L between H and the final syllable (Mester 1994), is attested in Plautus (*Rud.* 574), hence survived archaic parsing syncope. But Plautus also has Hσ *ardus* with full parsing (*Pe.* 266), indicating that /rd/ could result from syncope only from early Latin.

(12) Word shapes affected by early/classical parsing syncope

HLσ *a:ridus* above, *la:ridum* > *lardum* 'bacon'; *iu:gera* > IUGRA 'two-thirds of an acre of land (pl.)'(*CIL* 1^2.585.14.25; 111 B.C.), *asperi:s* > *aspri:s* 'rough (abl. pl.)' (Verg. *A.* 2.379)

LHLσ *magistera* > *magistra* 'female instructor', *sinistera* > *sinistra* 'left side'

LLHσ *vetera:nus* > *vetra:nus* 'veteran'

LLHLσ *stabula:rius* > *stabla:rius* 'of a stall'

(13) Phonetic environments affected by early/classical parsing syncope

/rd/ *a:ridus*

/spr, str/ *asperi:s*, *magistera*, *sinistera*

/tr, gr/ *vetera:nus*, *iu:gera*

/Tl/ *stabula:rius*

Strikingly, stop + liquid was an acceptable environment for avoiding trapped light syllables in early Latin. In developments such as *(ve.te).(ra:).{nus}* > *ve.(tra:).{nus}*, *(sta.bu).(la:).ri.{us}* > *sta.(bla:).ri.(us}*, the syncopated forms incur one more violation of PARSE-σ than the unsyncopated forms. However, the higher ranking SWP deems the syncopated forms with an unparsed light syllable preferable to forms with secondarily stressed light syllables.

	/LLHσ/ *vetera:nus*	SWP	PARSE-σ	ALL-FT-R	MAX-V
	(L̀L)(H́)σ	*!	*	***	
	LL(H́)σ		***!	*	
☞	L<L>(H́)σ		**	*	*

9. Conclusions

Syncope has presented numerous difficulties for the student of Latin linguistics. Resistance and reversal under analogical pressure have obscured the picture greatly, and the evidence taken together presents few patterns in either the phonetic environment or the metrical context for syncope. This account has demonstrated that a careful re-examination of the evidence, exercising extreme caution in categorising the data according to phonetics, metrics and chronology, can help find some order amid the chaos. Exon's first insight that any light internal syllable could be a target led us to reject the position that syncope in Latin was rhythmical in nature. No specific metrical position was targeted, neither Jacobs's 'weak position', nor Mester's 'trapped' syllables. However, Exon's second insight that the stressed syllable was often heavy pointed us to the fact that once internal heavy syllables were footed, their better alignment triggered syncope. We identified six syncopes at different periods of Latin, with their own synchronic motivations, and with different phonetic environments: (1) archaic SWP syncope, (2) alignment syncope, (3) archaic parsing syncope, (4) *(LLL) syncope, (5) early SWP/*(LLL) syncope, and (6) early/classical parsing syncope.

Establishing the reasons and environments for Latin syncope might greatly assist us in evaluating competing etymologies, where one or both invoke syncope at a certain period in a given phonetic environment. Etymologies live or die by the phonological developments they posit. Ultimately, it is hoped that these results will form the foundations of a

comprehensive account of Latin metrical structure from archaic to classical times, incorporating the changes in the position of the accent, and shortening/lengthening processes such as iambic and cretic shortening. This has hitherto proved elusive, but would significantly add to our understanding of the development of Latin from its parent language.

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